

REMARKS

Claims 1, 11, and 21 have been amended.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-3, 5, 7-9, 21 and 26 under 35 U.S.C. §103(a) as being obvious over U.S. Patent Application Publication No. 2001/0054758 to Harlan R. Isaak ("*Isaak*") in view of U.S. Patent No. 6,507,102 to Juskey et al. ("*Juskey*"). Applicant respectfully requests reconsideration of this rejection for at least the following reasons.

As for claim 1, claim 1 has been amended to recite, among other things, "an encapsulation material encasing the first die" and "an intermediate substrate having a first side and a second side, the first side being directly coupled to the first die side of the first carrier substrate and located along periphery of the encapsulating material, the second side being directly coupled to the second non-die side of the second carrier substrate, the intermediate substrate comprising of a substantially solid core having a first side and a second side, the substantially solid core comprising of a material reinforced with a matrix to increase rigidity of the microelectronic packages and control the coefficient of thermal expansion of the intermediate substrate." Underline added.

Applicant respectfully submits that *Isaak* and *Juskey*, individually or in combination, do not teach such features. In particular, in the Office Action the Examiner cites *Isaak* for the proposition that *Isaak* teaches "an intermediate substrate (34) having a first side (a top surface of the substrate [34]) and a second side (a bottom surface of the substrate [34]), the first side (a top surface of the substrate [34]) being coupled to the first die side (16b) of the first carrier substrate (14b) and the second side (a bottom surface of the substrate being coupled to the second non-die side (18a) of the second carrier substrate (14a)." See Office Action, page 5. However, *Isaak* **does not** show an encapsulating material encasing the first die and an intermediate substrate that is directly coupled to the first die side of the first carrier substrate and located along periphery of the encapsulating material, the second side being directly coupled to the second non-die side of the second carrier substrate. *Isaak* **does not** disclose encasing the first die with an encapsulating material and at best, only discloses an intermediate

substrate that is indirectly coupled to the first and second carrier substrates via frame pads 44 and 46. See *Isaak*, FIGS. 2 and 3. As a result, a gap is formed between the intermediate substrate 34 (as well as the integrated circuit chip 74) and the adjacent first and second carrier substrates 14. The presence of the gap prevents the intermediate substrate 34, as taught in *Isaak*, from increasing the rigidity of the microelectronic packages. Therefore, the intermediate substrate 34 of *Isaak* will not prevent warping or flexing of the microelectronic packages from occurring. This deficiency of *Isaak* is further not suggested or taught by *Juskey*. For at least these reasons, claim 1 is patentable over *Isaak* in view of *Juskey*.

Independent claim 21 has similar features as claim 1 and is therefore likewise patentable over *Isaak* in view of *Juskey*. Claims 2, 3, 5, 7-9, and 26 depend from and add additional features to independent claims 1 or 21. Therefore, by virtue of their dependency, claims 2, 3, 5, 7-9, and 26 are also patentable over *Isaak* in view of *Juskey*.

The Examiner further rejected claims 4, 10-15, 17-20, 22-25, and 27 under 35 U.S.C. § 103(a) as being unpatentable over *Isaak* in view of *Juskey* in further view of U.S. Patent No. 6,014,317 to Mark F. Sylvester ("*Sylvester*"), U.S. Patent Application Pub. No. 2004/0050586 to Hyoung-ho Roh ("*Roh*"), U.S. Patent No. 6,054,337 to Vernon Solberg ("*Solberg*") or U.S. Patent No. 5,145,303 to John R. Clarke ("*Clarke*"). Applicant respectfully requests reconsideration of this rejection for at least the following reasons.

As for independent claim 11, claim 11 has similar features as claims 1 and 21. Therefore, for at least the same reason that claims 1 and 21 are patentable over *Isaak* in view of *Juskey*, claim 11 is patentable over *Isaak* in view of *Juskey* in further view of *Solberg*.

Claims 4, 10, 12-15, 17-20, 22-25, and 27 depend from and add additional features to independent claims 1, 11, or 21, respectively. Therefore, by virtue of their dependency, claims 4, 10, 12-15, 17-20, 22-25, and 27 are patentable over *Isaak* in view of *Juskey* in further view of *Sylvester*, *Roh*, *Solberg*, or *Clarke*.

Conclusion:

In view of the foregoing, Applicant submits that claims 1-5, 7-15, and 17-27 are in condition of allowance. Early issuance of Notice of Allowance is respectfully requested. The Examiner is encouraged to telephone the undersigned if there are any remaining questions of patentability, and a telephone interview would be helpful in resolving these questions.

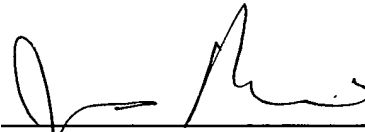
Respectfully submitted,

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Dated: _____

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